

## ABSTRACT

A Q-pole type mass spectrometer which can be used under a high-pressure atmosphere of more than 0.1 Pa is provided. The said Q-pole type mass spectrometer can analyze mass of gas molecule continuously, and can separate mass properly even if ion is injected at high speed in order to reduce an influence of an end electric field near an end face (fringing) of the Q-pole.

In this invention, it is noticed that the motion of ion to be measured in the diameter direction is independent of the motion of ion in the axial direction within the Q-pole region of the Q-pole type mass spectrometer. In the Q-pole type mass spectrometer installed in a reduced pressure atmosphere, the motion of ion to be measured in the axial direction advancing from an ion source toward a collector is controlled within the Q-pole region so as to separate mass of the ion to be measured by Coulomb force generated by a quadrupole high-frequency electric field in the diameter direction.